

**Translation**

**PATENT COOPERATION TREATY**

PCT/JP2003/014170



**PCT**

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**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>T785.ERG-1</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/JP2003/014170</b>	International filing date (day/month/year) <b>07 November 2003 (07.11.2003)</b>	Priority date (day/month/year) <b>08 November 2002 (08.11.2002)</b>
International Patent Classification (IPC) or national classification and IPC <b>C07J 9/00</b>		
Applicant <b>KANEKA CORPORATION</b>		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
  - ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - ☐ (sent to the International Bureau only) a total of \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

- ☒ Box No. I Basis of the report
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand <b>05 April 2004 (05.04.2004)</b>	Date of completion of this report <b>06 December 2004 (06.12.2004)</b>
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☒ The international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_, as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- pages \_\_\_\_\_, as originally filed/furnished
- pages\* \_\_\_\_\_, as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_, as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-6	YES
	Claims	7	NO
Inventive step (IS)	Claims		YES
	Claims	1-7	NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

### 2. Citations and explanations

- Document 1: JP 2002-105097 A (Kanegafuchi Chemical Ind. Co., Ltd.), 10 April 2002 (Family: none)
- Document 2: JP 2002-80493 A (Kanegafuchi Chemical Ind. Co., Ltd.), 19 March 2002 (Family: none)
- Document 3: JP 2002-80492 A (Kanegafuchi Chemical Ind. Co., Ltd.), 19 March 2002 (Family: none)
- Document 4: JP 50-142787 A (Mitsubishi Petrochemical Co., Ltd.), 17 November 1975 (Family: none)
- Document 5: JP 58-90599 A (Glaxo Group Ltd.), 30 May 1983 & GB 2107715 A & DE 3238569 A & BE 894725 A & SE 8205904 A & DK 8204611 A & FI 8203561 A & FR 2514769 A & NL 8204013 A & ZA 8207601 A & ES 516611 A & AU 8289460 A & CA 1189852 A & CH 652134 A & US 4866051 A
- Document 6: JP 7-41495 A (Nippon Kayaku KK), 10 February 1995 & EP 626388 A2 & AU 9463257 A & US 5614651 & CA 2124382 A & CN 1100101 A & HU 67804 A & US 5648507 A

#### Claims 1-6

Documents 1-3 disclose use of hexane, heptane and octane as organic solvents in inventions in which ergosterol is recovered by separating it out from an organic solvent solution containing ergosterol. Document 4

discloses extraction of ergosterol with an organic solvent such as n-butanol, adding water to the resulting extract solution, and leaving it at low temperature to obtain ergosterol. Documents 5 and 6 further disclose crystallization by using an organic solvent in the presence of water, or by gradually adding water, when crystallizing steroid hydrates. Given this, a person skilled in the art could easily supply water to the organic solvent solution when isolating ergosterol by separating it out.

The quantity of water supplied and the method for supplying it could be appropriately selected with reference to disclosures in documents 6 and 7.

In addition, extraction using an organic solvent, and recovery from this extract solution by cooling and crystallization is also conventionally practiced in the case of ergosterol (see e.g. document 1); and the use of a non-water-soluble organic solvent for this purpose is art disclosed in documents 1-3.

In passing, since the specific technical means for giving a percentage crystallization of the ergosterol to be isolated within the set range is not mentioned, claim 6 merely describes the result of carrying out a method described in claims 1-5; and since, as discussed above, the method set forth in claims 1-5 does not involve an inventive step, claim 6 also does not involve an inventive step.

#### Claim 7

Documents 1 and 3 disclose obtaining large crystals which are readily susceptible to solid/liquid separation, or bringing down crystal aggregates of a size which allows the use of known solid/liquid separation techniques, in the recovery of ergosterol; and these (aggregated) crystals of ergosterol are not substantially

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distinguishable from ergosterol aggregates claimed in  
claim 7.